

COMPLETE CLAIM SET

1. (Previously Presented) An apparatus for identifying a position of marked objects having unknown positions and detecting a property of the marked objects contained in a specimen, wherein the marked objects are marked with a fluorescent stain, the apparatus comprising

a frame,

a member positioned on the frame and having a surface that is adapted to receive and hold the specimen,

at least a first light source for emitting at least a first light beam towards the specimen held by the member, wherein the first light beam is adapted to provide a light spot having a diameter between 20-150 μ m on the specimen,

at least a detector for detecting fluorescent light emitted from the marked objects upon interaction with the first light beam, the first light source and the detector being arranged so that a part of a light beam path from the first light source to the specimen is co-axial with a part of the light emitted from the marked objects,

at least one beam-splitter being arranged to reflect the first light beam towards the specimen and filter light emitted from the specimen, thereby allowing fluorescent light from the marked objects to pass through the beam-splitter to the detector,

scanning means for scanning the entire surface of the member in relation to the detector along a non-linear curve, wherein the scanning means comprises means for rotating the member and means for displacing the member along a radius of the rotation of the member, so as to identify the position of the marked objects in the entire specimen and detect the property of the

marked objects, the means for rotating and the means for displacing being directly connected to the member, the member being rotatable and displaceable along a radius of the rotation of the member,

scanning control means for controlling the scanning means for scanning the specimen along the non-linear curve,

storage means for storing detector signals relating to the marked objects provided by the detector and corresponding position signals provided by the scanning control means,

means for retrieving the position signals stored in the storage means, and

a microscope for viewing images of the marked objects,

wherein the scanning control means use the retrieved position signals to place the microscope at the position of the marked objects to allow performing a detailed examination of the marked objects.

2-6. (Cancelled)

7. (Previously Presented) An apparatus according to claim 1, wherein the member is positioned for rotation about an axis on the frame and wherein the means for rotating the member rotates the member about the axis.

8. (Cancelled)

9. (Previously Presented) An apparatus according to claim 1, wherein the scanning control means are adapted to control the scanning means in such a way that the non-linear curve is a substantially circular curve.

10. (Cancelled)

11. (Previously Presented) An apparatus according to claim 1, further comprising means for sampling and digitising the detector signals and the position signals.

12. (Previously Presented) An apparatus according to claim 1, further comprising signal processing means operatively connected to the detector to detect a presence of an object based on the detector signals.

13-14. (Cancelled)

15. (Previously Presented) An apparatus according to claim 1, wherein the specimen has an area larger than 500 mm^2 .

16. (Previously Presented) An apparatus according to claim 1, wherein the specimen has an area larger than 8000 mm^2 .

17-22. (Cancelled)

23. (Previously Presented) An apparatus according to claim 1, wherein a mask is inserted in an optical path between the specimen and the detector, and the mask comprises at least one transparent aperture.

24. (Previously Presented) An apparatus according to claim 23, wherein the aperture shape is a substantially rectangular shape.

25-26. (Cancelled)

27. (Previously Presented) An apparatus according to claim 1, wherein the first light source is a coherent light source.

28. (Cancelled)

29. (Previously Presented) A method of identifying a position of a fluorescently marked object having an unknown position and detecting a property of the object contained in a specimen, wherein the object is a biological cell or a microorganism, the method comprising the steps of:

positioning the specimen on a member having a surface that is adapted to receive and hold the specimen,

emitting at least a first light beam from a first light source towards the specimen held by the member, wherein the first light beam is adapted to provide a light spot having a diameter between 20-150 μ m on the specimen, and wherein the first light beam is reflected by a beam-splitter towards the specimen,

scanning the entire surface of the member in relation to a detector along a non-linear curve by rotating the member holding the specimen and displacing the member along a radius of the rotation of the member, the member being rotatable and displaceable along a radius of the rotation of the member,

arranging the light source and the detector, so that a part of a light beam path from the first light source to the specimen is co-axial with a part of a light emitted from the object,

filtering through said beam-splitter light emitted from the specimen, passing fluorescent light from the marked objects through the beam-splitter towards the detector,

detecting the fluorescent light emitted from the object, thereby identifying the position of the object and detecting the property of the object during scanning of the entire specimen,

storing detector signals relating to the object provided by the detector and corresponding position signals provided by the scanning control means,

retrieving the position signals stored in the storage means,

placing a microscope at the position of the object using the retrieved the position signals to allow performing a detailed examination of the object, and

optically inspecting the object by viewing an image of the object via the microscope by a user.

30-35. (Cancelled)

36. (Previously Presented) A method according to claim 29, further comprising the step of storing signals relating to the detected property and corresponding data relating to the current position of the member.

37. (Previously Presented) A method according to claim 36, further comprising the step of sampling and digitising the signals and the data.

38-43. (Cancelled)

44. (Previously Presented) An apparatus according to claim 1, wherein the detector comprises a CCD device.

45-46. (Cancelled)

47. (Previously Presented) A method according to claim 29, further comprising establishing identity of the object by viewing the image of the object.

48. (Previously Presented) An apparatus according to claim 1, wherein the position signals of the marked objects are angular and radial coordinates.

49. (Previously Presented) A method according to claim 29, wherein the step of storing the corresponding position signals includes storing angular and radial coordinates of the object provided by the scanning control means.

50. (Previously Presented) A method according to claim 29, wherein the specimen has an area larger than 500 mm².

51. (Previously Presented) A method according to claim 29, wherein the specimen has an area larger than 8000 mm².